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He does not refer to the work of KRAEMER<sup>23</sup> or of MAQUENNE and ROUX,<sup>24</sup> who independently and from very different standpoints have found evidence of such a mixture. Since starch shows seven characteristic colloidal properties and only two crystalline properties he concludes that it is a colloid.

The author discusses at length the theories of staining with anilin colors, dismisses as wrong the adsorption theory, and concludes that, while in some cases, as in the staining of proteids, the reaction may be largely chemical, in most cases the taking up of the color is by solution, dyes not soluble in water being soluble in starch. He further concludes that the solution is a liquid and not a solid solution, the colloidal starch in the swollen grains being in a liquid state.—EDNA D. DAY.

**Heterospory in *Sphenophyllum*.**—This genus has been regarded as strictly homosporous, but THODAY<sup>25</sup> now describes and figures a section through the strobilus of *S. Dawsoni* which shows two adjacent sporangia, one of them containing spores of uniform size, the other containing fewer and larger spores, among which are seen numerous very small aborted ones. These contrasting sporangia certainly suggest heterospory, but the largest of the supposed megaspores has only about 1.5 times the diameter of the spores of the other sporangium. It will be remembered that in *Calamostachys Casheana* the megaspores are only three times as large as the microspores, and this was felt to be a remarkably small difference.—J. M. C.

**Proteid metabolism in the ripening barley grain.**—The first section of a paper to consist of three has been presented by SCHJERNING.<sup>26</sup> A short notice to call the attention of physiologists is appropriate here, but the reliability of the methods and conclusions must remain unconsidered. The author finds that species, variety, or type *per se* do not affect the chemical composition of the dry matter of the grain so far as the nitrogenous and mineral constituents are concerned. As the grain develops to maturity there is a constant tendency toward equilibrium between the nitrogenous constituents, which is established at maturity and which is not disturbed during subsequent storage except in the case of certain albumins.—RAYMOND H. POND.

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<sup>23</sup> KRAEMER, HENRY, The structure of the starch grain. BOT. GAZETTE. 34: 341. 1902.

<sup>24</sup> MAQUENNE et ROUX, Sur la constitution, la saccharification et la rétrogradation des empois de fécule. Comptes Rendus Acad. Sci. Paris 140: 1303-1308. 1905.

<sup>25</sup> THODAY, D., On a suggestion of heterospory in *Sphenophyllum Dawsoni*. New Phytol. 5: 91-93. figs. 14. 1906.

<sup>26</sup> SCHJERNING, H., On the protein substances of barley, in the grain itself and during the brewing processes: First section: On the formation and transformation of protein substances during the growth, ripening, and storage of barley. Compt.-Rend. Lab. Carlsberg 6: 229-305. 1906.